

# CONTENTS

<i>Foreword</i>	7
I. INTRODUCTION	
1 Nomograms	9
2 Projective plane	11
3 Projective (collineation) transformations	16
4 Analytical representation of a projective transformation	34
5 Rectilinear coordinates. Correlation	52
II. EQUATIONS WITH TWO VARIABLES	
6 Graph of a function	60
7 Functional scale	66
8 Logarithmic scale	73
9 Projective scale	77
III. EQUATIONS WITH THREE VARIABLES	
I. <i>Collineation nomograms</i>	
10 Equations of the form $f_1(u) + f_2(v) + f_3(w) = 0$ . Nomograms with three parallel scales	87
11 Equations of the form $1/f_1(u) + 1/f_2(v) + 1/f_3(w) = 0$ . Nomograms with three scales passing through a point	100
12 Equations of the form $f_1(u)f_2(v) = f_3(w)$ . Nomograms of the letter N type	111
13 Equations of the form $f_1(x)f_2(y)f_3(z) = 1$ . Nomograms with scales on the sides of a triangle	118
14 Nomograms with three rectilinear scales	126
15 Nomograms with curvilinear scales	130
16 The Cauchy equation	140
17 The Clark equation	155
18 The Soreau equation of the first kind	161
19 The Soreau equation of the second kind	166
20 An arbitrary equation with three variables. Nomograms consisting of two scales and a family of envelopes	169

II. *Lattice nomograms*

21	General form of lattice nomograms	175
22	Rectilinear lattice nomograms	182

## IV. EQUATIONS WITH MANY VARIABLES

23	Collineation nomograms of many variables	202
24	Elementary geometrical methods of joining nomograms	217
25	Systems of equations. Nomograms consisting of two parts to be superimposed on each other	235

## V. PROBLEMS OF THEORETICAL NOMOGRAPHY

26	The Massau method of transforming nomograms	242
27	Curvilinear nomograms for the equations $f_1(u)f_2(v)f_3(w) = 1$ , $f_1(u) + f_2(v) + f_3(w) = 0$ , $f_1(u)f_2(v)f_3(w) = f_1(u) + f_2(v) + f_3(w)$	253
28	The nomographic order of an equation. Kind of nomogram. Critical points	265
29	Equations of the third nomographic order	272
30	Equations of the fourth nomographic order	284
31	Criteria of nomogrammability of a function	293
32	Criterion of Saint Robert	301
	<i>Bibliography</i>	310
	<i>Index</i>	311